Simpson

Test Equipment
Catalog



No One Beats Simpson on Quality



When asked why they buy Simpson Products, Simpson customers consistently use the word “quality.” Customers trust Simpson products to give accurate and constant readings, durable and reliable performance, and easy operation.

One Simpson customer describes Simpson products as “...the best value...because they’re constant.” Customers also appreciate Simpson’s “rugged” and “easy to use” meters. Simpson’s durable cases withstand chemical vapors and other harsh environments, and no other testers on the market are easier to use than Simpson testers.

Another Simpson product user remarks “No one beats Simpson on Quality.”

What establishes Simpson Electric Company as an icon of excellence in the test equipment market? Ultimately, the answer lies in Simpson Electric’s reputation for quality and value and customer trust in the superiority of Simpson products.

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Simpson Electric Company is 100% owned by the Lac du Flambeau Band of Lake Superior Chippewa Indians. The Chippewa Band dedicates itself to expanding Simpson’s success in the Test Equipment Industry and to furthering economic growth in the Native American community.

Simpson Electric is certified as an MBE (Minority Business Enterprise) by the Wisconsin Supplier Development Council, which is a member of the National Supplier Development Council.

Table of Contents

260-9S & 260-9SP Industrial Safety VOM 3
260-8 & 260-8P Analog VOM 4
260-8Xi & 260-8XPi Analog VOM 5
260-6XLM & 260-6XLPM 6
160 Handi - VOM 7
270-5 VOM 8
501 Insulation Tester 9
505 High Voltage Insulation Tester 10
228 Leakage Current Tester 11
229 - 2 Leakage Current Tester 12
8455 Line Loop Tester 13-14
444 Low Voltage Micro-Ohmmeter 15
TS113 Railroad Tester 16
372-2 Compact Ohmmeter 17
897 Sound Dosimeter System 18-19
- SMS-2 Universal Sound Dosimeter Kit 19
- 887-2 Calibrator 19

Sound/Noise Measuring Systems 20-21
- 884-2 Sound Level Meter 20
- 886-2 Multi Weight Sound Level Meter 20
- 890-2 Calibrator 20
 - Microphone 20
 - Microphone Holder 20
 - Microphone Cable 20
 - Sound Level Meter Specifications 21

Test Equipment Accessories 22-24
- Test Probes/Cables/Clips 22
- Screw-On Adapters 22
- 444 Accessories 22
 - Standard Test Lead Set 22
 - Kelvin Test Probe Set 22
- Test Leads for 8455 22
- Carrying Cases 23
- Amp-Clamp Adapters 24
- Battery Adapter Kit 24

Analog VOM Ranges and Specifications Table 25

Serving the Test Equipment Market for more than 70 years

About Simpson Electric Company

Established in 1934, Simpson Electric Company today enjoys a worldwide reputation as a leading manufacturer of test/measurement instruments, panel meters and controllers serving a wide variety of industries and service markets.

Simpson products are available from over 1,500 electronics and electrical distributors nationwide.

Simpson Test Instruments…

Are more than just good specifications! Comparing function, range, and accuracy is important when selecting an electronic or electrical test instrument. But there is more to consider than manufacturers' specifications...

Reliability…

Should be the first consideration when looking for a test instrument. Simpson test instruments are designed to be used by professionals. They deliver more hours of dependable use, with less time spent for calibration or repair.

Simpson test instruments are built to last. With high quality components, built-in electrical overload protection systems, and rugged construction, Simpson products withstand tough day-to-day usage.

Availability

Simpson instruments are easily available with immediate off-the-shelf delivery, from leading electrical/electronics distributors nationwide. Service is within reach, from an Authorized Service Center or at the factory in Lac du Flambeau, Wisconsin. Depend on Simpson for quality products and services to meet all customer needs.

Multiple Inspection

Simpson takes pride in delivering a quality product. Every Simpson test instrument undergoes multiple inspections during assembly to make certain that each instrument performs to specifications. Incoming parts are carefully examined and compared with specifications. Assembled circuit boards are "exercised" by automated test equipment. Each instrument is calibrated by experienced technicians. All instruments receive a final check of ranges and functions before shipment.

Simpson is currently in the process of becoming ISO 9001:2000 certified.

Simpson Warranty

Each Simpson tester is backed by a one-year warranty against defects in materials or workmanship.

Warranty

SIMPSON ELECTRIC COMPANY warrants each instrument and other articles of equipment manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any instrument or other article of equipment which shall within one year after delivery of such instrument or other article of equipment to the original purchaser be returned intact to it, or to one of its authorized service stations, with transportation charges prepaid, and which examination shall disclose to its satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on its part, and SIMPSON ELECTRIC COMPANY neither assumes nor authorizes any other persons to assume for it any other liability in connection with the sale of its product. This warranty shall not apply to any instrument or other article of equipment which shall have been repaired or altered outside the SIMPSON ELECTRIC COMPANY factory or authorized service stations, nor which has been subject to misuse, negligence or accident, incorrect wiring by other, or installation or use not in accord with instructions furnished by the manufacturer.

Quality Assurance
Precision Instruments
Efficient Customer Service

Simpson Electric Company exceeds all customer expectations.

Depend on Simpson to satisfy your test equipment needs.

Call Customer Service at
(715) 588-3947
or visit our website
www.simpsonelectric.com

260-9S & 260-9SP Industrial Safety VOM

The new 260 Volt-Ohm-Meter is suitable for testing most commercial and industrial installations and is rated for Category III-600V applications.

Safety is the major design feature of the 260-9S/9SP and the reputation, advantages and reliability of Simpson test equipment is guaranteed.

- ***Certified to EN61010-1 to 600V, Category III for safety***
- ***Self-contained AC current measurement up to 10 Amps***
- ***Overload protection available***
- ***Includes test lead set with retractable banana jacks and carrying case***



Specifications

DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 2.5V, 10V, 25V, 60V, 100V, 250V, 600V	2% of full scale	20KΩ per volt

AC VOLTAGE

Ranges	Accuracy	Voltage Drop
2.5V, 10V, 25V, 60V, 100V, 250V, 600V	3% of full scale	5KΩ per volt

AC CURRENT

Ranges	Accuracy	Sensitivity
0-10	3% of full scale	250mV

Ranges: Up to 250 amperes with AC Amp-Clamp Adapter Accessory #00541

DECIBEL

5 Ranges: -20 to +43dB
Reference: 0dB= 1mW into 600Ω

Specifications (Continued)

DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
1mA, 10mA, 100mA, 600mA 10A	±2% of full scale	250mV

RESISTANCE

Ranges	Accuracy	Max. Indication
Rx 1 Rx 100 Rx 10K	Better than ±2.5° of arc ±2° of arc ±2° of arc	0-2KΩ 0-200KΩ 0-200MΩ

FUSE: F1 1A, 250V, type 3AG, quick acting Littelfuse® Type 312001; F2 2A, 600V Littelfuse® Type BLS or 2A 600V, Bussman® Type BBS.
BATTERIES: 1.5V D, 9V (Neda No. 13F, 1604A)
PHYSICAL: Dimensions 7"(H)x5.25"(W) x 3.1"(D), (17.78x13.34x7.94cm)
Weight 2.25 lbs. (1.02Kg)
Specifications subject to change without notice.

Ordering Information

ANALOG MULTIMETERS	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
260-9S, Safety VOM	12397	Case, Nylon Padded, Safety Orange, 260	00838	150-2 AC Clamp Adapter	00541
260-9SP, Safety VOM, protected with case	12398	Test Lead Set, Retractable Banana, Probe Tip	07546	Clip Set, Alligator, Screw On	00425

260-8® & 260-8P® Analog VOM

When a Digital Multimeter won't do the Job

Professionals have long recognized that a Simpson 260 analog meter is superior to the best DMM when monitoring fluctuating trends and rates.

The 260-8 features more attributes than its predecessors. Standard and high-energy fusing in conjunction with diode network meter movement protection makes the 260-8 the best combination of quality and affordability.

The 260-8P has an additional relay overload protection circuit that is resettable and also provides audible continuity checking.

- ***36 Measurement Ranges*** *- Covers both AC and DC Voltage and Current measurements, as well as resistance testing*
- ***Connections Safeguarded*** *- Standard size reverse/recessed safety jacks prevent operator and/or tool contact with electrical connections of the instrument*
- ***Overload Protection*** *- Diode network protects instrument from overload damage during use (260-8P and 260-8PRT only)*
- ***Rugged Construction*** *- The Phenolic case is designed with heavy reinforced walls for maximum durability; self-shielding taut-band provides added shock resistance for the meter movement*
- ***Portable, for the Workshop, Lab, or in the Field*** *- Portable enough to carry, with benchtop accuracy*
- ***Versatile****- Full-size test leads with threaded probe tips for screw-on alligator clips. Eliminates the need to change test leads while working*
- ***Simple Operation****- Two knobs control the selection of ranges and functions*



Specifications

DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 1V, 2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	2% of full scale	20KΩ per volt

AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	3% of full scale	5KΩ per volt

Specifications (Continued)

AC CURRENT

Ranges: Up to 250 amperes with AC Amp-Clamp Adapter Accessory #00545

DECIBEL

5 Ranges: -20 to +50dB
Reference: 0dB= 1mW into 600Ω

DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50μA, 1mA, 10mA, 100mA, 500mA, 10A	1.5% full scale 50 μA 2.0% of full scale, all others	250mV on 50 μA/1mA; 255mV on 10mA/10A; 300mV on 100mA; 500mV on 500mA

RESISTANCE

Ranges	Accuracy	Max. Indication
Rx 1		0-2KΩ
Rx 100	2.5° of arc Rx 1	0-200KΩ
Rx 10K	2.0° of arc on all others	0-20MΩ

RATED CIRCUIT-TO-GROUND VOLTAGE: 1000V (AC or DC) max.
FUSE: F1 1A, 250V, type 3AG, quick acting Littelfuse® Type 312001; F2 2A, 600V Littelfuse® Type BLS or 2A 600V, Bussman® Type BBS.
BATTERIES: 1.5V D, 9V (Neda No. 13F, 1604A)
PHYSICAL: Dimensions 7"(H)x5.5"(W) x 3.1"(D), (18x14x8cm)
Weight 3 lbs. (1.4Kg)
Specifications subject to change without notice.

Ordering Information

ANALOG MULTIMETERS	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
260-8, General Purpose	12388	Model 150-2 Amp-Clamp Adapter	00545	Roll-Top Case	00248
260-8P, Relay Protected	12391	Probe Set, threaded w/clips	00043	Case, Hard Leatherette Front Load	00805
260-8RT, Roll Top Case	12389	Case,Yellow Padded Polyester	00832	Case, Molded Plastic	45028
260-8PRT, Protected, Roll Top Case	12392	Case, Black Padded Polyester	00834		

Additional accessories on pages 22-24.

260-8Xi® & 260-8XPi® Analog VOM

260-8Xi has all of the circuit protection features and advantages for which the 260 Series is famous...

And even more features than its predecessors. The yellow case color for enhanced visibility and user safety awareness is the trademark of the 260-8Xi. The durable ABS plastic case also provides high-impact resistance and increased drop protection in the toughest environments.

- *Instant Trend Information for Quick Positive "Yes/No" Checks*
- *Zero RFI Emission*
- *Audible Continuity Check*
- *Resettable Overload Circuit Protection Relay*
- *1.5 V and 9 V Batteries and Probe Test Leads With Alligator Clips*
- *Mirrored Scale for Parallax Reduction*



Specifications

DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	2% of full scale	20KΩ per volt

AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	3% of full scale	5KΩ per volt

DECIBEL

5 Ranges: -20 to +50dB
Reference: 0dB= 1mW into 600Ω

AC CURRENT

Up to 250 AC amperes with AC Amp-Clamp Adapter Accessory 00541.

DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50µA, 1mA, 10mA, 100mA, 500mA, 10A	1.5% full scale 50 µA 2.0% of full scale, all others	250mV on 50 µA/1mA; 255mV on 10mA/10A; 300mV on 100mA; 500mV on 500mA

Specifications (Continued)

RESISTANCE

Ranges	Accuracy	Maximum Indication
Rx1	2.5° of arc on Rx1	0-2KΩ
Rx100	2.0° of arc on all others	0-200KΩ
Rx10K	2.0° of arc on all others	0-20MΩ

BATTERIES: 1.5 V D, 9V (NEDA No. 13F, 1604A)
FUSE: F1 1A, 250V, type 3AG, quick acting Littelfuse® Type 312001; F2 2A, 600V Littelfuse® Type BLS or 2A 600V, Bussman® Type BBS.
SIZE: 5 1/4" x 7" x 3 1/8" (13.34 x 17.78 x 7.94 cm)
WEIGHT: 2 1/4 lbs. (1.02 Kg)
RATED CIRCUIT-TO-GROUND VOLTAGE: 1000V AC/DC Max

Specifications subject to change without notice.

Ordering Information

VOM	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
260-8Xi, Yellow	12395	Probe Leads w/Screw-on Alligator Clip	00125	Case, Yellow Padded Polyester	00832
260-8XPi, Protected, Yellow	12396	Probe Set, Replaceable Tip, Banana	07538	Case, Black Padded Polyester	00834
		Lead Set, Alligator, Banana	07500	Case, Hard Leatherette Front Load	00805
		Clip Set, Alligator, Screw-On	00425	Case, Molded Plastic	45028
		150-2 Amp Clamp Adapter, AC	00541		

Additional accessories are on pages 22-24.

260-6XLM & 260-6XLPM® Low Power VOM®

Low Power Ohms Range

Based on the famous 260, the 260-6XLPM has extra features and extra ranges. The large viewing area with color-coded scales minimizes measurement mistakes and visual confusion. The 260-6XLPM allows accurate in-circuit tests without risk to components or without causing digital circuits to switch states. The durable ABS plastic case provides high-impact resistance and increased drop protection in the toughest environments.

- *Instant Trend Information for Quick Positive "Yes/No" Checks*
- *2 Extra "Low Power" Ohms Ranges (Rx1 and Rx10)*
- *Mirrored Scale for Parallax Reduction*
- *Resettable Overload Circuit Protection Relay*
- *Includes 9 V and 1.5 V Batteries and Probe Test Leads With Alligator Clips*



Specifications

DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 1V, 2.5V, 10V, 25V, 100V, 250V, 500V, 1000V	2% of full scale	20KΩ per volt

AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 25V, 100V, 250V, 500V, 1000V	3% of full scale	5KΩ per volt

DECIBEL

5 Ranges: -20 to +49dB
Reference: 0dB= 1mW into 600Ω

AC CURRENT

Up to 250 AC amperes with AC Amp-Clamp Adapter Accessory 00541.

DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50µA, 0.5mA, 5mA, 50mA, 500mA, 5A,	1% of Full Scale 50 µA 2.0% full scale, all other	250mV on 50µA/0.5mA/5A; 252mV on 5mA/50mA; 400mV on 500mA

STANDARD POWER RESISTANCE

Ranges	Accuracy	Maximum Indication	Open Circuit Voltage	Short Circuit Current
Rx1		0-2KΩ	1.5V	250mA
Rx100	2.5° of arc on Rx1	0-200KΩ	1.5V	2.5mA
Rx1K	2.0° of arc on all others	0-2MΩ	1.5V	250µA
Rx10K		0-20MΩ	9.0V	125µA

LOW POWER RESISTANCE

Ranges	Accuracy	Maximum Indication	Open Circuit Voltage	Short Circuit Current
Rx1	2.5° of arc on Rx1	0-1KΩ	100mV	4.9mA
Rx10	2.0° of arc onRx10	0-10KΩ	100mV	490µA

BATTERIES: 1.5V D, 9V (NEDA No. 13F, 1604A)
FUSE: F1 1A, 250V, type 3AG, quick acting Littelfuse® Type 312001, F2 2A, 600V Littelfuse® Type BLS or 2A 600V, Bussman® Type BBS.
SIZE: 5 1/4" x 7" x 3 1/8" (13.34 x 17.78 x 7.94 cm)
WEIGHT: 2 1/4 lbs. (1.02 Kg)
RATED CIRCUIT-TO-GROUND VOLTAGE: 1000V AC/DC Max

Specifications subject to change without notice.

Ordering Information

VOM	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
260-6XLM	12206	Probe Leads w/Screw-on Alligator Clip	00125	Padded Polyester Case (Yellow)	00832
260-6XLPM	12211	Probe Set, Replaceable Tip, Banana	07538	Padded Polyester Case (Black)	00834
		Lead Set, Alligator, Banana	07500	Case, Hard Leatherette Front Load	00805
		Clip Set, Alligator, Screw-On	00425	Case, Molded Plastic	45028
		150-2 Amp Clamp Adapter, AC	00541		

Additional accessories are on pages 22-24.

160® Handi - VOM

Smallest and Handiest of Simpson's Shock Resistant Analog VOMs

The 160 combines the performance and reliability of the famous Simpson 260 in a convenient hand-held package. The self-shielding taut-band movement features outstanding repeatability and resistance to stray magnetic fields. Internal circuits protect the meter from accidental overload.

- *Ideal for Nulling, Peaking and Trend Information*
- *Quick, Positive "Yes/No" Checks for Voltage, Current and Continuity*
- *Does Not Generate RF Radiation Which can cause Interference or Trigger External Sensitive Circuits*
- *High Immunity to Voltage Transients and RF Interference—No Expensive Chips to Wipe Out*
- *Includes 22.5V and 1.5V Batteries and Test Leads With Probe Tip*



Specifications

DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 1V, 2.5V, 10V, 50V, 250V, 500V, 1000V	2% of full scale	20KΩ per volt

AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 50V, 250V, 500V, 1000V	3% of full scale	5KΩ per volt

DECIBEL

5 Ranges: -20 to +50dB
Reference: 0dB= 1mW into 600Ω

DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50μA, 1mA, 10mA, 100mA, 250mA, 500mA	2% of full scale	250mV or 50mV on 50 μA (2 ranges) 50mV, all others

RESISTANCE

Ranges	Accuracy	Maximum Indication
Rx1	3° of arc	0-3KΩ
Rx10		0-30KΩ
Rx100		0-300KΩ
Rx1K		0-3MΩ
Rx10K		0-30MΩ

Specifications (Continued)

BATTERIES: 1.5V AA, 22.5V (Neda No.13F, Eveready 505)
OPERATING TEMPERATURE RANGE: 75°F for rated accuracy; less than 4% additional error over the range of +25°F to +130°F.
SIZE: 4-9/16" x 3-5/16" x 1-3/4" (11.59 x 8.41 x 4.45 cm)
WEIGHT: Approximately 12 ounces (.34 Kg)
CONSTRUCTION: Combination high impact plastic and phenolic case
CIRCUIT TO GROUND VOLTAGE: 1000V AC/DC Max.

Specifications subject to change without notice.

Ordering Information

VOM	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
160, Compact	12271	Test Leads w/Probe Tip	02055	Padded Nylon Case, Brown	00836
		Test Leads w/Alligator Tips	01927		

Additional accessories are on pages 22-24.

Extra-High Accuracy VOM

Higher accuracy specifications for those more critical measurements are found in the Model 270-5. It has a better than 30% improvement in voltage and resistance accuracy as a full-function/range member of the Simpson 260 type VOM group.

- *DCV Accuracy 1.25% of Full Scale*
- *ACV Accuracy 2% of Full Scale*
- *Resistance Accuracy 1.0° of Arc*
- *Diode Protected Self-Shielded Movement*
- *Includes Batteries and Probe Leads With Alligator Clips*



Specifications

DC VOLTAGE

Ranges	Accuracy*	Voltage Drop (Nominal)
250mV, 1V, 2.5V, 10V, 50V, 250V, 500V, 1000V	1.25% of full scale @ 77°F 1.75% of full scale @ 67°F - 87°F	20KΩ per volt

AC VOLTAGE

Ranges	Accuracy*	Voltage Drop (Nominal)
2.5V, 10V, 50V, 250V, 500V, 1000V	2% of full scale @ 77°F 3% of full scale @67°F -87°F	5KΩ per volt

DECIBEL:
4 Ranges- -20 To +50dB Reference- 0dB=1mW Into 600Ω

DC CURRENT

Ranges	Accuracy*	Voltage Drop (Nominal)
50µA, 1mA, 10mA, 100mA, 500mA, 10A	0.75% full scale on 50 µA @ 77°F 1.25% full scale of all others @ 77 °F 1.25% full scale on 50 µA @ 67°F - 87°F 1.75% full scale of all others @ 67 °F - 87°F	250mV on 50 µA and 1mA 255mV on 10mA and 10A 300mV on 100mA 500mV on 500mA

RESISTANCE

Ranges	Accuracy*	Max. Indication
Rx 1 Rx 100 Rx 10K	1.5° of arc on Rx1 1° of arc on all others	0-2KΩ 0-200KΩ 0-20MΩ

*Accuracies specified are for the 270-5 in a horizontal position.

Specifications (Continued)

BATTERIES: 1.5V D, 9V (NEDA No. 13F,1604A)
SIZE: 7"(H) x 5.5"(W) 3.1"(D) (18x14x8cm)
WEIGHT: Approximately 3LBS. (1.4Kg)
FUSE: F1 1A, 250V, type 3AG, quick acting Littelfuse® Type 312001; F2 2A, 600 Littelfuse® Type BLS or 2A 600V, Bussman® Type BBS.
CIRCUIT TO GROUND VOLTAGE: 1000V AC/DC Max

Specifications subject to change without notice.

"GRAB N GO"
PADDED NYLON CASES

Padded Nylon "Grab N Go" made of tough durable nylon enables VOM to be stored for quick field use... test leads remain in panel jacks. Thick padding protects your meter. Available in Yellow (00832) and Black (00834).



ROLL TOP CASES

Roll-top case made of a durable composite material protects meter during transit/storage. Cover rolls back into case for use. Special storage compartment for test leads under meter.



Ordering Information

VOMS	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
270-5, High Accuracy	12226	Probe Set, Threaded w/Clips	00043	Case, Molded Plastic	45028
270-5RT, High Accuracy, w/ Roll-Top Case	12227	Alligator Clips, Screw On	00425	Case, Yellow Padded Nylon	00832
		150-2 Amp Clamp Adapter, AC	00545	Case, Black Padded Nylon	00834
				Case, Hard Leatherette Front Load	00805
				Case, Roll-top	00248

Additional accessories on pages 22-24.

501 Insulation Tester

The model 501 can be used for general purpose insulation tests that require voltages from 50V to 1000V only.
The Instrument is equipped with AC and DC measuring ranges up to 1000V. This is advantageous for testing for the absence of voltage and the discharge of capacitive devices under test.
The 501 features a quick testing signal lamp within the test probe that illuminates the work area. The signal lamp can also be used for quick Pass/Fail evaluations of insulation resistances. Minimum values for insulation resistances are present if the lamp lights up.
Comes equipped with built-in test probes, an alligator clip, a leatherette carrying case and batteries.



- *Five Test Voltages: 50, 100, 250, 500, and 1000 VDC*
- *Voltage Measurement to 1000 V AC/DC*
- *Test Probe Signal Lamp Illuminates Work Area and Indicates Pass/Fail of Insulation Resistance*
- *Battery Powered with Battery Test and Battery Charge Indicator*
- *Rugged Tester Design for Industrial Applications with Leatherette Carrying Case*

Measuring Ranges

INSULATION RESISTANCE

Measuring Range	Open-Circuit Voltage U_o	Internal Resistance R_i	Lamp in Test Prod [1] Lights for Resistance
0…50KΩ 20KΩ…1MΩ 200KΩ…20MΩ	60V	30KΩ 10KΩ 40KΩ	> 100KΩ
0…100KΩ 40KΩ…2MΩ 400KΩ…40MΩ	120V	60KΩ 20KΩ 80KΩ	> 200KΩ
0…250KΩ 100KΩ…5MΩ 1MΩ…100MΩ	300V	150KΩ 50KΩ 200KΩ	> 500KΩ
0…500KΩ 200KΩ…10MΩ 2MΩ…200MΩ	600V	300KΩ 100KΩ 400KΩ	> 1MΩ
0…1MΩ 400KΩ…20MΩ 4MΩ…400MΩ	1200V	600KΩ 200KΩ 800KΩ	> 2MΩ
0…4Ω	9V	–	–

(1) Switching Accuracy

DIRECT AND ALTERNATING CURRENT

Measuring Range	Frequency	Internal Resistance	Maximam Overload	Intrinsic Error (1)
0 to 1000V AC/DC	0 or 40 to 200Hz	900KΩ	1200V AC/DC Continuous	±2.5%

(1) Referring to scale length

Ordering Information

ACCESSORIES	Catalog No.
501 Insulation Tester, 1000 V	12501

Specifications

REFERENCE CONDITIONS
Ambient Temperature: 73°F (23°C) ± 4°F (2°C)
Relative Humidity: 45 to 55%
Measurement Magnitude Frequency: 45-65 Hz (voltage measurements)
Line Voltage Waveform: Sine, deviation between effective and rectified value < .5%
Battery Voltage: 9V ± .5V
Operating Position: Horizontal

ELECTROMAGNETIC COMPATIBILITY EMC
Interference Emission:
EN 50081-1: 1992
Interference Immunity:
EN 50082-1: 1992

ELECTRICAL SAFETY
Designed to IEC 1010-1
Protection Class: II
Test Voltage: ≈ 5.55Kv
Overvoltage Classification: II
Pollution Degree: 2
Protection: Housing IP52

AMBIENT CONDITIONS
Operating Temp. Range: 32°F (0°C) to 104°F (40°C)
Storage Temp. Range: -4°F (-20°C) to 140°F (60°C) (without batteries)
Relative Humidity: Max. 45-55%, condensation must be avoided

MECHANICAL DESIGN
Dimensions: ***W*** 6.50" (165mm) x
D 4.33" (110mm) x ***H*** 4.92" (125mm)
Weight: 3.5 lbs. (1.6kg) (with batteries)

POWER SUPPLY
Standard or Storage Battery: 6 ea. 1.5V "D" size batteries
Working Range: 7V to 10V
Battery Service Life: Number of possible measurements with 1 set of "D" size batteries (with lamp in test prod switched off): at least 3,000 measurements of an insulation resistance of 1MΩ (Nominal Voltage of1000 V, 5 sec. Measurement duration, switched off for 25 sec. etc.)

505 High Voltage Insulation Tester

Measures Insulation Resistances Up To 1 T Ohm

Simpson's Model 505 High Voltage Insulation Tester is capable of measuring insulation resistances from 10 kilohms to 1 teraohm with eight selectable test voltages up to 5000 V. As a safety feature, the insulation tester acts as an AC/DC voltmeter to measure the absence of voltage in networks up to 2000V. For added safety, the cables are permanently attached, preventing possible injury that could occur by the accidental removal of the cables. The Model 505 features automatic discharging capability of capacitive units under test and a lock in test switch, for hands-free operation. An optional guard terminal is available to minimize surface leakage errors. Two LEDs indicate the selected measuring range, and one LED signifies valid measurements and battery charge status. Each tester comes in a padded carrying case with permanently connected cables and test probes, 2 alligator clips and a plug-in battery module with batteries.

- *Eight Test Voltages: 100, 250, 500, 1000, 1500, 2000, 2500, and 5000 VDC*
- *High Sensitivity, Direct Resistance Reading to 1T Ω (1,000,000 M Ω), no Multipliers*
- *Voltage Measurement to 2000 V AC/DC*
- *Battery Powered*
- *Built in Battery Test and Battery Charge Indicator*



Measuring Ranges

INSULATION RESISTANCE

Nominal / Open-Circuit Voltage	Measuring Range	Nominal Current	Short Circuit Current	Intrinsic Error (1)
100V 250V 500V 1000V	100KΩ to 100MΩ	1 mA	1.3 mA	±2.5%
100V/1500V 250V/2000V 500V/2500V 1000V/5000V	10KΩ to 1 TΩ	0.7 mA 0.5 mA 0.4 mA 0.1 mA	1.3 mA	±5%

DIRECT AND ALTERNATING VOLTAGE

Measuring Range	Frequency	Internal Resistance	Maximum Overload	Intrinsic Error (1)
0-2000V AC/DC	15Hz to 500Hz	5MΩ	2200V AC/DC max. 10s	±5%

(1) Referring to scale length

Specifications

REFERENCE CONDITIONS
Ambient Temperature: 73°F (23°C) ± 4°F (2°C)
Relative Humidity: 45 to 55%
Measurement Magnitude Frequency: 60Hz
(voltage measurements)
Line Voltage Waveform: Sine, deviation between effective and rectified value ≈ 1%
Battery Voltage: 9V ± 1%
Operating Position: Horizontal

ELECTROMAGNETIC COMPATIBILITY EMC
Interference Emission: EN 50081-1: 1992
Interference Immunity: EN 50082-1: 1992

ELECTRICAL SAFETY
Designed to IEC 1010-1
Protection Class: II
Test Voltage: ≈8.5 Kv
Overvoltage Classification: II
Pollution Degree: 2
Protection: IP 52

AMBIENT CONDITIONS
Operating Temp. Range: 32°F (0°C) to 104°F (40°C)
Storage Temp. Range: -4°F (-20°C) to 140°F (60°C)
(without batteries)
Relative Humidity: max. 75%, condensation must be avoided
Batteries: 6 ea. 1.5V "D" size batteries
Working Range: 6 to 10V
Battery Service Life: 100 hours for no-load and intermittent operation, 7500 measurements for test voltage of 1000V with measure resistance of 1 MΩ, 15,000 measurements for test voltage of 500V with measure resistance of 500KΩ, measurement of 5sec.- pause 25sec.

MECHANICAL DESIGN
Dimensions: **W** 11.41" (290mm) x **D** 9.8" (250mm) x **H** 5.5" (140mm)
Weight: Approx.. 7.5 lbs. (with batteries)

Specifications Subject To Change Without Notice.

Ordering Information

ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
505 High-Voltage Insulation Tester	12505	Guard Cable with Alligator Clip	45065	Replacement Alligator Clips (pair)	45066

228 Leakage Current Tester

Model 228 Special Purpose AC/DC Milliameter

Designed specifically to measure hazardous "Leakage Currents" or "Touch Currents" which may appear when a person touches the conductive surface of electrical or electronic equipment. The 228 is designed in accordance with IEC990, ANSI and UL guidelines.

- *True RMS Readings*
- *Reads in Measurement Indication Units (MIU) up to .005 MIU*
- *Output Allows Measurement of Peak Current in Non-Sinusoidal Wave Forms*
- *Let-Go, Reaction, and Burn Hazard Response Networks*
- *Detects dangerous AC & DC Leakage currents*
- *Includes Test Leads, Alligator Clips, Batteries and Manual*



Specifications

GENERAL	Reaction Response Network	Let-Go Response Network	Unweighted Burn Hazard Response Network
Equivalent network component values:	Complies with values specified in IEC 990 (excluding fuse)		
Equivalent measuring instrument load:	1 MΩ - 10pF	1 MΩ - 62 pF	1 MΩ - 1 pF
Ranges:	0.3, 1, 3, 10 M.I.U.	0.3, 1, 3, 10 M.I.U.	0-100 mA RMS
Current accuracy:	±2% F.S. @ 60 Hz		
Meter measurement method:	True RMS		
Meter frequency response:	(Relative to ANSI C101-1992 or UL-1459 2nd edition)		
DC to 1 Hz	Pointer shall track within 5% of peak		
2Hz to 19Hz (Accuracy not supported)			
20 Hz to 200 KHz	±2% F.S.	±2.5% of F.S.	±2% F.S.
200 KHz to 1 MHz	±2% F.S.	±2.5% F.S.	±5% F.S.
Output sensitivity:	Full scale meter indication equals 1V RMS (Measured with a 1 MΩ, 12 pF load)		
Output accuracy:	±2% of reading @ 60 Hz		
Output frequency response:	(Relative to ANSI C101-1992 or UL-1459 2nd edition)		
DC to 50Hz	±2% of reading		
50 Hz to 100 KHz	±2.5% of reading	+2% /-3% of reading	±2% of reading
100 kHz to 1 MHz	±5% of reading		
Voltmeter range:	0-300 V (AC or DC)		
Voltmeter accuracy: DC to 1 Hz	Pointer shall track within 5% of peak		
2Hz to 19Hz (Accuracy not supported)			
20 Hz to 1KHz	±3% F.S. @ 60 Hz (Add ±1% for every additional 100Hz)		
Voltmeter frequency response:	DC to 1 KHz		
Power requirements:	(2) 9V (NEDA 1604A) batteries		
Physical:	7" x 5.25" x 3.125", 2-1/2 lbs (1.4kg), ABS plastic, fused input		
Environmental:	27°C ±2° C, 70% non condensing relative humidity. Outside this range derate by 10% per °C		
Maximum operating range:	0° to 40° C		

Ordering Information

Specifications subject to change without notice.

Leakage Tester	Catalog No.
228 Leakage Current Tester	40027

ACCESSORIES	Catalog No.
Test Leads w/Screw-On Alligator Clips	00125
Case, Black Padded Nylon Carrying	00834

Additional accessories are on pages 22-24.

Optional carrying case includes convenient storage pouch for test leads and Operators Manual.



229 - 2 Leakage Current Tester

AC Current Leakage Tester

Small leakage currents can be dangerous! The current above the "threshold of perception" in appliances, motors and other equipment can cause a violent reaction which may result in serious physical injury. For service, lab, production or industry, the Model 229-2 helps determine product conformance to standards.

CAUTION! Leakage current in appliances may increase with use and aging. Check appliances periodically for safety.



- *Conforms to ANSI C101.1-1986 "Leakage Current for Appliances"*
- *Conforms to UL Safety Standards*
- *Compensated to Approximate Dalziel's Perception Curve*
- *Overload protected Up to 500 V Peak Momentarily on all ranges*
- *Checks both 120 VAC and 240 VAC appliances*
- *Includes Test Leads, Battery and Manual*

Specifications

Ranges: AC current: 0-0.3-1-3-10 mA
AC voltage: 0-150 and 0-300 volts
Battery Test: Replace-Good
Short Test: Red Arc: 30 mA FS, Green arc: 10 mA or less
Resolution: 5μA on 0-0.3 mA range
Accuracy: ±3% at 60 Hz
Input Impedance: For current tests, 1.5KΩ in parallel with 0.15 μF
Input Resistance: 0.5 for 150V Range, 1.0 MΩ for the 300V range
Accuracy Vs. Frequency: Approximates Dalziel's "Percentile 50 Threshold of Perception Curve" within ±1.0 dB
Overload Protection: Up to 500V peak momentary on all ranges
Size: 7" x 5-1/4" x 3-1/8"
Weight: 3 lbs. (1.4 Kg)
Battery: 9V (NEDA No. 13F, 1604A)

Specifications subject to change without notice.



Carrying Case accommodates the Tester, Test Leads and operators Manual.

Ordering Information

LEAKAGE TESTER	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
229-2 Current Leakage tester	12267	Probe leads w/ screw-on alligator clips	00125	Case, Yellow Padded Nylon	00832
		Probe set, replaceable tip, banana plug	07538	Case, Black Padded Nylon	00834
		Clip set, alligator, screw on	00425	Case, Hard Leatherette Front Load	00805
		Lead set, alligator, banana plug	07500	Case, Molded Plastic	45028

Additional accessories on pages 22-24.

Line Loop Tester

Available with Field Replaceable Switches

Simpson's Model 8455 Line Loop tester detects line shorts, opens and multiple ringers, DC voltages and loop resistance. It can measure DC voltage up to 100 volts and loop resistance to 2 megohms. A front panel "reverse polarity" switch allows changing polarity positions quicker and easier than manually switching test leads when making line checks. This switch is field-replaceable, enabling your loop tester to be operational at all times without costly shop repairs. The compact durable construction of this tester ensures continued accuracy even under the most rugged field conditions.

- ***Field Replaceable Switches*** *- Allows operator to get back to the job quickly with less downtime. The replacement toggles or push buttons can be kept in the truck and replaced on site, keeping the unit in service, at all times.*
- ***Designed for Telecom Applications*** *- Accurately checks line shorts, opens and multiple ringers.*
- ***Wide Measuring Range*** *- Measures DC voltage 0-100V and resistance R x 1, R ÷ 10.*
- ***Shorter Testing Time*** *- Polarity toggle switch eliminates manually switching test leads when conducting line checks.*
- ***Rugged for Field Use*** *- Durable, compact (5-1/2" x 2-3/8") construction makes it portable, easy to store and rugged.*
- ***Accurate, Finer Readings*** *- 0-100 points scale calibration yields accurate readings.*

RESISTANCE

Model	Standard		Low Ohms	
Range	R x 1	R÷10	Points	Low ohms
Center Value	100KΩ	10KΩ	50 points	500Ω
Accuracy	2° of arc		2° of full scale	2° of arc
Open Circuit Voltage (nom)	45V	45V	N/A	1.2V
Short Circuit Current (nom)	450μA	4.5mA	N/A	2.4mA



Model No. 8455

Specifications

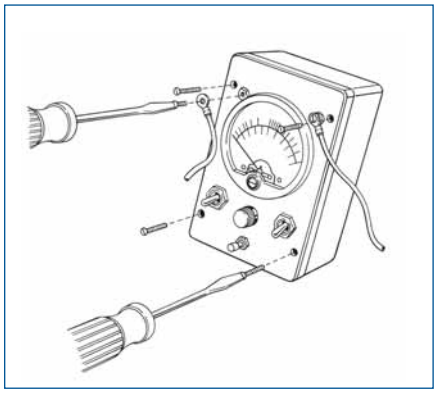
DC Voltage:
Range: 100V
Sensitivity: Model 8455, 1K Ω per volt
Model 8455 A, 3333 Ω per volt
Isolation: 100V DC max. circuit to earth ground
Overload Protection: 10mA/250V fuse on all ranges
Temperature Coefficient: (57°F to 97°F): ±2% F.S. (VDC)
Battery Type: (1) Eveready #455 (45V); Catalog Number 06-113313
Physical: Dimensions: 5.5" (H) x 3.6" (W) x 2.4" (D), (14 x 9 x 6 cm.)
Weight: 1 lb. (0.5 Kg.)

Specifications subject to change without notice.

Ordering Information

MODEL 8455 LINE LOOP TESTER				MODEL 8455A LINE LOOP TESTER (Low Ohms Version)			
	Catalog No.	Catalog No.	Catalog No.		Catalog No.	Catalog No.	Catalog No.
	40000	40001	40010		40002	40009	40011
Field Rep. Switch	Yes	Yes	Yes	Field Rep. Switch	Yes	Yes	Yes
Low Ohms	No	No	No	Low Ohms	Yes	Yes	Yes
ACCESSORIES INCLUDED							
Case	No	Yes	Yes	Case	Yes	No	Yes
Leads	No	Yes	Yes	Leads	Yes	No	Yes
Battery	No	No	Yes	Battery	No	No	Yes
Manual	No	No	Yes	Manual	No	No	Yes
OPTIONAL ACCESSORIES (RECOMMENDED)							
Case	00836	00836	00836	Case	00836	00836	00836
Leads	45001	45001	45001	Leads	45001	45001	45001
10 Pk. Replaceable Switches-toggle	45025	45025	45025	10 Pk. Replaceable Switches-toggle	45025	45025	45025
10 Pk. Replaceable Switches-Push Button	45026	45026	45026	10 Pk. Replaceable Switches-Push Button	45026	45026	45026

Field Replaceable Switches Save Time - Save Money



Remove the test leads and 4 screws located near the meter face from the 8455A's front cover.

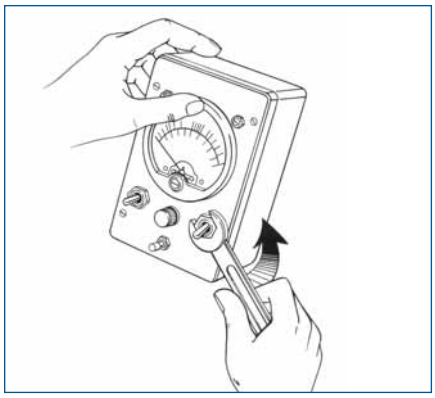
Simpson's FIELD REPLACEABLE SWITCHES - replace broken switches in less time than it takes to complete a field report or repair paper work. Simpson uses the best toggle switches, with pinned toggles for longer life.

The pictorial steps to the left illustrate the simplicity of replacing a toggle switch. (Complete detailed replacement instructions are provided in both the 8455 and 8455A operator's manuals.)



Model 8455A Low Ohms Version . . .

includes all the features of the 8455. Select the low ohms model if measuring electrical resistance over short lines (for example, in city and suburban locations).



Detach the mounting nut from the defective toggle switch.

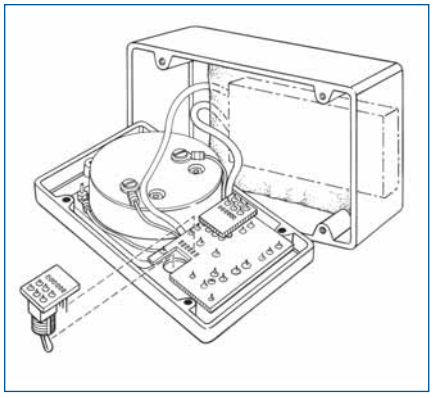
Test Leads for 8455 and 8455A

Model No. 45001

Consists of one each, red and black, flexible test leads, 6 ft. long with Telco clips at one end and ring-tongue connectors at the other end for connection to the Instrument's screw terminals



45001



Unplug the worn out or broken switches and plug in a new one! Total time under 5 minutes.
Push-button style switches also available.

Protection for 8455 & 8455A

Simpson's foam padded, nylon water repellent case, (Model No. 00836) protects the 8455 or 8455A both in storage and during transport. Use either the case handle or adjustable nylon strap for easy carrying. The neck strap frees both hands for making measurements. The case. made of nylon mesh with an extremely dense weave and water repellent backing, safely protects unit from inclement conditions. Foam padding on sides, top and bottom safeguards unit from damage. A convenient pocket stores leads while they are attached to the instrument.



00836

444 Low Voltage Micro-Ohmmeter

Measures from 1 Micro-Ohm to 20 Ohms

Simpson's high precision Model 444 Micro-Ohmmeter measures resistance from 1 micro-ohm to 20 ohms. It measures using an extremely small test voltage (100 microvolt maximum) and a four wire measurement technique. The resistance reading is indicated on a 4- 1/2 digit LCD display using one of two measuring modes: An automatic AC measurement mode or a manual DC measurement mode. By limiting the test voltage of the Model 444 to only 100 micro volts the instrument will not "punch through" contamination or corrosion. An audible tone can be used to indicate resistance values below any selected reading. The Model 444 is powered by a 120 AC source or, from self-contained rechargeable Ni-Cad batteries for field use.



- *20,000 Count 4 1/2-Digit LCD*
- *2 Measurement Methods: AC Pulse and DC Polarity Switching*
- *Punch-Through Prevention by 100 μV Max. Test Voltage*
- *User-Adjustable, Low-Resistance Alarm*
- *AC Test Mode Cancels Offset Voltages and Thermocouple Effects*
- *Includes Ni-Cad Battery for Field Use and Test Leads*

Specifications

Range	Resolution	Maximum Test Current
20mΩ	1μΩ	5mA
200mΩ	10μΩ	500μA
2Ω	100μΩ	50μA
20Ω	1mΩ	5μ

Accuracy: ±(0.05% of input ± 600 counts) DC mode
±(0.05% of input ± 15 counts) AC mode
Alarm: Resistance below set point activates audible beeper and display annunciator. Resistance above set point activates display annunciator.
Set point Adjustment: Front Panel Knob
Accuracy: ± (2% of input +150 counts)
Maximum Test Voltage: 100μV peak
Measurement Techniques: (AC) Pulse of 40 Hertz Square Wave and DC Switchable Polarity
Display: 19,999 count LCD with 0.5" digits and "AC," "DC" and " ▲▼ " annunciators
Conversion rate: reading 2 per second
Test Leads: BNC to dual Kelvin clip (2 leads) RG-58
Operating Voltage: 120VAC ± 10%, 3VA typical
Operating Temperature Range: 0° to 50°C
Storage Temperature Range: -40° to +60°C

Specifications (Continued)

Relative Humidity: 90% maximum up to 35°C, 70% maximum up to +50°C (non-condensing)
Temperature Coefficient: 0.1 times the applicable accuracy specification per °C (0° to 18°C and 28° to 50°C)
Battery Voltage Effect: Plus or Minus (0.15% of input); Fully charged to "B" annunciator displayed
Battery Life: 8 hours typical
Rated Circuit-To-Ground Voltage: 30V (RMS)
Dimensions: 2.7" x 8.4" x 9.0" (68 x 213 x 228 mm) nominal
Weight: Approximately 3 lbs.

Ordering Information

MICRO-OHMMETER	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
444 Micro-Ohmmeter, 120V	12681	Standard Test Lead Set	00827	Case, Molded Plastic	45029
		Kelvin Test Probe Set	02151		

TS113 Railroad Tester

Multimeter for Railroad Servicing

The Simpson TS-113 Volt-Ohm-Milliammeter Railroad Test Set is a rugged, reliable instrument that has been designed for use by trained and qualified technicians associated with the Railroad Signaling and Communications Field. In construction and general principle, it follows closely the proven Simpson pattern based on experience of many years of successful multimeter manufacture.



The following standard features are exclusive only to the TS113 Railroad Tester:

- *AC current transformer facilitates minimal voltage drop*
- Percent on time measurement at any rate in excess of 30 pulses per minute
- An adjustable Pointer Stop for observation of peak reading stabilization
- A current-limiting diode prevents overload damage
- Includes black padded nylon Carrying Case and Test Lead Set

Specifications

DC VOLTAGE

Ranges	Accuracy	Specifications
0.25V, 0.6V, 3V, 15V, 60V, 150V, 300V, 600V	±2% of Full Scale	1,000 Ohms per volt

DC CURRENT

Ranges	Accuracy	Specifications
15mA, 60mA, 300mA, 1.5A, 6A, 30A	±2% of Full Scale	250 mV

AC VOLTAGE

Ranges	Accuracy	Specifications
3V, 15V, 60V, 150V, 300V, 600V	±3% of Full Scale	300 Ohms per volt

AC CURRENT

Ranges	Accuracy	Specifications
6A, 30A	±3% of Full Scale	250 mV

OHMMETER

Ranges	Center Scale	Accuracy
Rx1	6Ω	± 5.0 of arc
Rx100	600Ω	± 2.5 of arc
Rx1000	6000Ω	± 2.5 of arc

CODE MEASUREMENT SPECIFICATIONS

	Ranges	Accuracy
On Time:	0-100%	± 2% of Full Scale from 10% to 100%
Rate:	30 to 500cpm	

PHYSICAL

Dimensions: 7-1/8" (H) x 5-1/4" (W) x3" (D), (133.4 x 181 x 76.2 mm)
Weight: 2.5 lbs. (1.14 kg)
Moisture Resistance: 85%
Temperature: 0° - 50°c

POWER REQUIREMENTS

Two 9-volt batteries
One 1.5 volt D-cell
2A Fuse, Littelfuse #AG 2A or equal
2A cartridge fuse (Littelfuse BLS 2 600V or Bussman BBS 2A)

Specifications subject to change without notice.

Ordering Information

	Catalog No.	ACCESSORIES	Catalog No.
TS113 Railroad Tester	12113	Replacement Test Leads	07545
		Replacement Carrying Case	00834

372-2 Compact Ohmmeter

MODEL 372-2—Ohmmeter, 0.2 to 50 MΩ

Provides a wide range of resistance measurements in a small package. .2 ohm to 50 megohms. Especially useful for checking submersible pumps. Ideal for use in schools, on test benches or at incoming inspection facilities.



- ***Ranges,*** *0-500/ 0-5000/0-50,000/ 0-500,000 Ohms; 0-5 and 0-50 Megohms*
- ***Center Scale,*** *5/50/500/5,000/ 50,000/500,000 Ohms*
- ***Accuracy,*** *±3% of Linear Arc Length*
- ***Includes*** *Battery and Alligator Clip Leads*

Ohms Range	Ohms Center	Maximum DC Test Current at Zero Ohms	Maximum DC Test Voltage (Open Circuit)
RX1 (0-500Ω)	5Ω	300mA	1.5V
RX1 (0-5KΩ)	50Ω	30mA	1.5V
RX100 (0-50KΩ)	500Ω	3mA	1.5V
RX1K (0-500KΩ)	5KΩ	0.3mA	1.5V
RX10K (0-5MΩ)	50KΩ	0.63mA	30V
RX100K (0-50MΩ)	500KΩ	0.063mA	30V

BATTERY TYPES
(1) 1.5 "C", NEDA 14A
(1) 30V 'B', NEDA 210

Efficient Customer Service *has been a valuable tool for generations of Simpson customers. Customer Service offers ongoing support for our products and calibration and repair service for all current test equipment. To obtain service for a discontinued Simpson product contact Customer Service for assistance. We offer information regarding our capabilities and referrals to other service centers.*

Call (715) 588-3947

Ordering Information

COMPACT METER	Catalog No.	ACCESSORIES	Catalog No.
372-2 Ohmmeter	12311	Case, Brown Padded Polyester	00836
		Leads	00125

Additional accessories are on pages 22-24.

897 Sound Dosimeter System

The 897 Dosimeter Sound Measuring System...

conducts personal noise surveys to meet IEC and OSHA requirements. Used as a sound level meter, the 897 provides a quick survey of targeted areas and identifies suspect locations. The 897 is also ideal for industrial and environmental sound level measurements and checking noise areas for excessive dB exposure.

Use the 897 to take measurements, or to view and print reports using a PC computer or printer. Reports are automatically printed on a compatible PC printer for later use during OSHA or other official inspections. Recorded data can also be viewed on a personal computer monitor by using an accessory cable and other manufacturer's software.

The 897 computes dosage and records up to 31 hours, at one minute intervals, of Lavg and Lmax readings and the number of detected 140 dB peak occurrences per minute.



- *Conforms to ANSI S1.4-1983, ANSI S1.25-1978, and IEC 651-1979 Specifications*
- *Choice of exchange rates (3, 4, or 5 dB) and criterion levels (70, 80, 84, 85, or 90 dB)*
- *Selectable threshold Level from 50-99 dB in 1 dB Increments*
- *Dual range (50-100 dB and 80-130 dB)*
- *Real Time Clock With rechargeable battery*
- *Security Lockout feature with Internal Data Storage*
- *Self-Test Modes test operational readiness*

Specifications

GENERAL
Power Requirements: Ni-Cad Rechargeable battery pack
Warm-Up Time: 1 minute
Dimensions: 6.8" (H) x 3.1" (W) x 1.1" (D), (172x80x28mm)
Weight: 18 oz. (500g) including battery pack
Case Construction: Anodized aluminum extrusion
Security Feature: Locks-in operating function
Real Time Clock: Clock continues running in all functions
Performance Capability: Conforms to ANSI S1.4-1983 and IEC 651-1971 for sound level function and ANSI S1.25-1978 for dosimeter function and ANSI S1.25-1978 for dosimeter function

SOUND LEVEL MODE
Ranges: 50 to 100dB, 80 to 130dB
Accuracy: True RMS, Type S2
Dynamic Range: Selectable from 50 to 100dB and 80 to 130dB
Frequency Response Weighting: "A" Weighting
Response Time: Slow (1 second)
Crest Factor: 10:1 at maximum indication
Frequency Range: 20Hz to 8KHz

DOSIMETER MODE
Threshold Level: Selectable from 50-99dB in 1dB increments
Criterion Level: Selectable, 70, 80, 84, 85 or 90dB
Criterion Duration (TC): Eight (8) Hours
Exchange Rate: Selectable 3, 4 or 5dB
Maximum Indication: 999.9% DOSE
Resolution: 0.1% DOSE to 999.9%

Specifications (Continued)

Elapsed Time: Displays either Hours: Minutes or Minutes: Seconds, up to 99 Hours 59 Minutes, 59 Seconds. Timing Accuracy: 0.05%
140dB Peak: Displays number of 140dB peaks that have been detected

MICROPHONE
Type: 0.52" (13.2mm) Diameter Electret Condenser, Omnidirectional 70° angle of incidence. Maximum sound pressure level 148dB.

DISPLAY
Numerical: 4 Digit LCD
Annunciators: Lo Batt, Spl Max, Int 60, % Dose, dBA, plus a colon and decimal point.

ENVIRONMENTAL
Operating Temperature: -10° to 50°C
Temperature Coefficient: ±0.05dB per °C (25° to 50°C) for reference measurement of 105dB at 1000Hz
Relative Humidity: <0.5dB (0-95% RH)
Storage Range: -30° to 45°C (without batteries)
Magnetic Field Influence: No effect in field of 1 oersted (80A/m)

897 Sound Dosimeter System

SMS-2 Universal Sound Dosimeter Kit

The SMS-2 contains everything necessary to perform accurate surveys for OSHA and IEC requirements, along with the performance and reliability Simpson's test instruments have to offer.

Kit includes:

A. Rugged Carrying Case
B. AC Adapter (110, 120, 220, 240)
C. RS-232 Serial Cable and Parallel Printer Cable
D. Multi-Spline Wrench
E. Calibration Screwdriver
F. Microphone Clip
G. Wind Screen
H. 897 Dosimeter
I. 9V Battery
J. 887-2 Calibrator
K. Nose Cone



STANDARD REPORT OUTPUT

```
                    SIMPSON 897 DOSIMETER
                    SOUND ANALYSIS REPORT
                          TYPE 2A

CRITERION = 90 DB
THERSHOLD = 80 DB
EXCHANGE RATE = 3 DB
UNIT IDENTIFACATION # 25

JOB

NAME

LOCATION

START DATE: 21/FEB/95
START TIME: 14:24
CALIBRATION:  94.8 DBA  14:24 21/FEB/95  RANGE: 50/100 DB
CALIBRATION: 113.9 DBA  14:24 21/FEB/95  RANGE: 80/100 DB

MEASURMENT SUMMARY:
RUN TIME       = 00:15
HOLD TIME      = 00:02
L EQ           = 87.2 DBA
SPL MAX        = 87.2 DBA
DOSE           = 1.5%
140 DB PEAKS   = 0

                         HISOTGRAM

          50    60    70    80    90   100  110  120   130
HRS:MIN   + . . + . . + . . + . . + . . + . . + . . + . . +
14:25     ==================== 88
14:230                  === 86
14:35     =============== 76 HOLD
HRS:MIN   + . . + . . + . . + . . + . . + . . + . . + . . +

HRS:MIN   LAVG        LMAX       PEAKS      RANGE
14:25     86.9        95.6       0          CHANGED
14:26     93.2       106.9       0          80/130
14:27     87.9        92.5       0          80/130
14:28     87.3        97.3       0          80/130
14:29     86.4        86.6       0          80/130
14:30     86.5        93.0       0          80/130
14:31     87.2        90.0       0          80/130
14:32     87.2        91.2       0          80/130
14:33     84.9        92.1       0          80/130
14:34     85.4        85.6       0          80/130
14:35     86.2        86.6       0          CHANGED
14:36     86.5        86.6       0          50/100     HOLD
14:37     60.9        71.5       0          50/100     HOLD
14:38     85.1       101.6       0          50/100
14:39     64.6        78.4       0          50/100

                    END OF REPORT
```

887-2 Calibrator

The model 887-2 calibrator is selectable for either 94 dB or 114 dB sound pressure level at 1 KHz. The calibrator, immune to a wide range of temperature and humidity conditions, is compatible with 1/2" microphone. Operational readiness is indicated by the low battery red LED.



Specifications

GENERAL

Battery: One 9-volt battery, NEDA 1604A
Battery Life: Approximately 35 hours for 2 hours per day operation, with 9V alkaline battery
Mechanical Construction: Aluminum case includes acoustic cavity and provides shielding
Weight: 13.5oz (.35kg) - 897, 5.9 lbs. (2.68 Kg) SMS-2 Kit
Dimensions: 5 1/4" long, 2" diameter (131 mm long, 50mm diameter)

ACOUSTIC OUTPUT

Microphone: 0.52" inch diameter
Frequency: 1000Hz ±1%
Sound Pressure: Selectable at 94 or 114 dB
Reference Level: 0dB = 20μ Pascal's
Accuracy: ±0.5dB at reference conditions
Distortion: Less than 1%

ENVIRONMENTAL

Operating Temperature: 0° to 50°C
Storage Temperature: -40 to +60°C, battery removed
Temperature Coefficient: Less than ±0.05 dB/°C
Operating Relative Humidity: 0 to 90%, non-condensing
Reference Conditions: 23°C, 760mm Hg
Relative Humidity: 30 to 60%

Specifications subject to change without notice.

Ordering Information

SOUND DOSIMETRY SYSTEM	Catalog No.	SOUND DOSIMETRY SYSTEM	Catalog No.	ACCESSORIES	Catalog No.
897 Universal Noise Dosimeter	12645	887-2 Calibrator	12648	RS-232 Serial Cable for 897	02233
SMS-2 Universal Noise Dosimeter Kit	12646			Parallel Printer Cable for 897	02234
				Case, Molded Plastic	45021

Sound/Noise Measuring Systems

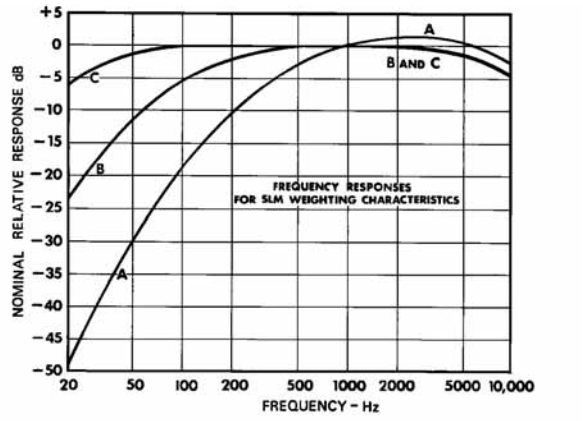
Sound Level Systems

Simpson Type 2 sound level systems come in a variety of configurations to meet any noise measurement requirements. Each system is composed of several components designed to work together as one integrated test instrument and output jacks that will supply an AC RMS or DC Volt signal.

- *Meets IEC 651 and ANSI S1.4-1983 Meters*
- *Meets OSHA and Walsh-Healy Noise Control Specifications*
- *Quickly and Accurately Measures Sound Levels in Factories, Offices, Etc.*
- *Full coverage 40-140 dB with special 85-115 dB OSHA range*
- *Impact-resistant case contoured to minimize sound energy field reflections*
- *Operates 40 hours on a 9V battery*
- *AC and DC voltage jacks for recorder, analyzer and tester Interface*
- *Built-in tripod mount*

The American National Standards Institute (ANSI) provides for three weighting curves: "A ", "B", and "C".
The "A" weighted curve more closely corresponds to the response of the ear and is specified by OSHA. The "C" curve is essentially a "flat" frequency response and can be used in conjunction with a "fast response for an approximate indication of impulse noise levels. Low Frequency noises are better monitored by the "C" curve than the "A" curve. Low frequency sounds need to be louder to be heard.

The chart below shows the relationship between frequency and relative response.



884-2 Sound Level Meter



- *Rugged solid-state reliability,*
- *"A" weighting*
- *Battery Operated*

886-2 Multi Weight Sound Level Meter



- *Rugged solid-state reliability,*
- *"A" , "B" and "C" weighting*
- *Detachable microphone*
- *Fast and slow response*

890-2 Calibrator



Sound pressure level calibrators are used before or after taking measurements with sound level meters and noise dosimeters. The 890-2 can adjust Simpson models 886-2 and 884-2 or other sound level meters with a 1" diameter Microphone. The 890-2 provides a constant 94 dB or 114 dB sound pressure level at 1 KHz (0 dB = 0.0002 Mbar). Calibrator is immune to a wide range of temperature and humidity conditions while maintaining tight output level tolerances.

Extra Microphone For 886-2
Model No. 00183





Microphone Cable For 886-2
Model No. 00198

Tripod Mount
Microphone Holder
Model No. 00184



884-2 TYPE S2A / 886-2 TYPE 2

Specifications

GENERAL	
Physical:	3.0" x 8.2" x 1.9" (77 x 208 x 47mm)
Weight:	1.25 lbs (.57kg)
Construction:	Molded ABS Plastic Housing
POWER REQUIREMENTS	
Battery type:	(1) 9V NEDA 1604A
Battery life:	40 hrs. (approx.)
TEMPERATURE RANGE	
Operating:	-10° to 50°C
Storage:	-40° to 60°C
Temp. influence:	+/-0.015 dB/°C @ 1KHz
Operating humidity:	+/-0.5dB 0 to 90%
SOUND LEVEL	
Ranges:	40 to 140 dB
Reference:	0dB = 20m Pascal's
Accuracy:	meets ANSI S1.4-1983
Weighting:	
	884-2 type S2A (only): "A" (external filter for flat response)
	886-2 type 2 (only):A,B,C, (external filter for flat response)
MICROPHONE	
Type:	condenser type L size per ANSI S1.12-1967
Impedance:	350Ω +/-20% @ 23°C
Characteristics:	omnidirectional, angle of incidence approximates random response equal to 70°
SIGNAL OUTPUT	
External filter:	120mV RMS at meter reading of +10dB
RMS Output:	1.00V RMS at meter reading of + 10dB
dB Output:	1.5 VDC at meter reading of + 10dB
Calibration:	frequency=1000Hz @ 94dB on the 90 dB range, 114 dB on the 110 dB range. Screwdriver adjustable (from side of case)
METER MOVEMENT	
Type:	Pivot and Jewel, 2 1/2" dial;
Scale:	-10 to +10 dB w/(15) 1dB markings
Accuracy:	2%
Response time:	Slow = 2.5 dB to a 500ms tone burst of 1000Hz Fast = 2.0 dB to a 200ms tone burst of 1000Hz
OUTPUT JACK	
Type:	Switchcraft # 750(0.141"dia.) f/external filter, # 850(0.097" dia.) f/dB and RMS output

MODEL 890-2 CALIBRATOR

Specifications

ACOUSTIC OUTPUT	
Frequency:	1000Hz +/-1%
Sound Pressure Level:	94dB, 114dB
ACCURACY	
Frequency:	+/-1%
Sound Level:	+/-0.5dB at reference condition
Distortion:	<1%
Reference:	0dB = 0.0002m bar
POWER REQUIREMENTS	
Battery Type:	(1) 9V NEDA 1604
Battery Life:	35 hrs approx.
ENVIRONMENTAL	
Operating Temperature:	0° to 50°C
Output Temperature Coefficient:	<-0.05dB/°C
Relative Humidity:	0-90%
Relative Conditions:	23°C, 760mmHg, 30-50% relative humidity
PHYSICAL	
Construction:	aluminum housing
Dimensions:	5.25" long x 2" diameter, (13 x 5cm)
Weight:	14oz (400g)

Breaking ground *determines the high technology that Simpson offers its customers. Simpson innovated the use of Lucite-illuminated meters in order to provide better visibility. The first compact, all purpose volt-ohm milliameter, the 260, became a standard for military use in World War II. In fact, a veteran recently called and requested service on a 260 unit that was purchased in 1947.*

Now into the 21st century, Simpson Electric still upholds its reputation as a goundbreaker, introducing products that continue to enhance the Test Equipment market.

Ordering Information

SOUND LEVEL METERS	Catalog No. w/case	Catalog No. w/890-2 calibrator
Model 884-2	40003	40006
Model 886-2	40004	40007

SOUND LEVEL CALIBRATORS	Catalog No.
Model 890-2	12890

ACCESSORIES	Catalog No.
25' microphone cable for 886-2	00198
Microphone for 886-2	00183
Tripod mount microphone holder for 00183 microphone	00184
Case, Molded Plastic	45022

Test Probes / Cables / Clips

The quality of Simpson test probes and clips are proven worldwide. See individual models for full listings.

TEST PROBES AND CLIPS

	FOR MODEL	Threaded	Plain	Replaceable	Alligator	Crocodile
Reverse Insulated 	260-8, 270-5, 14510, 260-7, 360-3, 460-5, 6, 461, 462, 463, 464, 465, 467, 470, 474, 16979	00043 (Includes alligator clips)				
Standard Banana 	260-8XI, 260-6XLPM, 229-2, 260-AFP-1 TS111-3, 250, 255, 260-3,4,5,6, 270-1,2,3,4 262-3, 265, 269-3, 303XL, 360-2, 362-2, 370 to 377, 605-2	00125 (Includes alligator clips)		07538	07500	00236
Mini Banana 	160 165		02055		01927	
Standard Banana 	TS113					07545

No longer available.

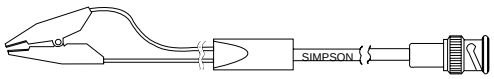
Screw-On Adapters

Alligator Clips (1 pr.)
Model No. 00425

Retractable Grip-Tip Lead Probe Adapter 6-13/16" long, for use with 00043 probes.

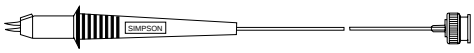
444 Accessories

Standard Test Lead Set
Model No. 00827



This test lead set with two leads, 1 meter long, consists of RG-58 cable with a BNC connector on one end and a small Kelvin clip on the other end. The Kelvin clip will accept a conductor up to 0.3" diameter.

Kelvin Test Probe Set
Model No. 02151



The Kelvin probe set consists of RG-174 cable with a BNC connector on one end and a Kelvin probe on the other end. Spring contacts of the Kelvin probe are sharply pointed to penetrate corrosion and are close together, for usage in tight areas.

Test Leads for 8455

Model No. 45001

Consists of one each, red and black, flexible test leads, 6 ft. long with Telco clips at one end and ring-tongue connectors at the other end for connection to the Instrument's screw terminals



Test Leads for TS113

Model No. 07545

Consists of one pair of 4' flexible color-coded ends with Banana Plugs & Insulated Crocodile Clips



Carrying Cases

Padded Nylon "Grab N Go"cases, made of tough durable nylon, enables VOM to be stored for quick field use ...test leads remain in panel jacks. Thick padding protects meter. Available in yellow (00832), black (00834) and orange (00838) for 260 series or similar size meters; brown (00836) for smaller models.

Molded Plastic cases have die cut foam inserts to protect meters and accessories. Ideal for lab's or tool cribs. High density plastic case resists scratches and scars.

Model No.00832



Model No. 00836







Model No. 45028
Molded Plastic Case

Foam insert protects meter, plastic case resists scratching and scarring.
(Equipment not included)



Model No. 00805
Leatherette Case

Solid case with leather appearance

Below is a cross-reference guide for carrying cases, by model number.

Model No.	Grab-N-Go	Molded Plastic	Leather Like	Roll-Top
160	00836			
228	00832/00834/00838	45028	00805	
229-2	00832/00834/00838	45028	00805	
250	00832/00834/00838			
255	00832/00834/00838			
260-6XLPM	00832/00834/00838	45028	00805	
260-8, 8P	00832/00834/00838	45028	00805	00248
260-8Xi, 8XPi	00832/00834/00838	45028	00805	
260-9S, 9SP	00832/00834/00838	45028	00805	
265	00832/00834/00838			
270-5	00832/00834/00838	45028	00805	00248
372-2	00836			
362 to 379	00836			
385-3L	00836			
390-2	00836			
400-2		45031		
401, 405-2		45030		
444		45029		
IR-10	00836			
TS112, TS113	00834/00832/00838			
897		45021		
884-2, 886-2, 889		45022		
8455, 8455A	00836			
14510	00832/00834/00838	45028	00805	

For test probes and cables, refer to chart on page 22.

Amp-Clamp Adapters

Amp-Clamp current probes, used with analog VOMs provide accurate measurements of high AC current found in power systems and related control circuitry. The Amp-Clamp jaws are closed over a conductor in the circuit and the current load is indicated on the connected meter. The 150-2 has six ranges (up to 300 A, AC) and is available with banana and reverse banana plugs.



Model No. 150-2

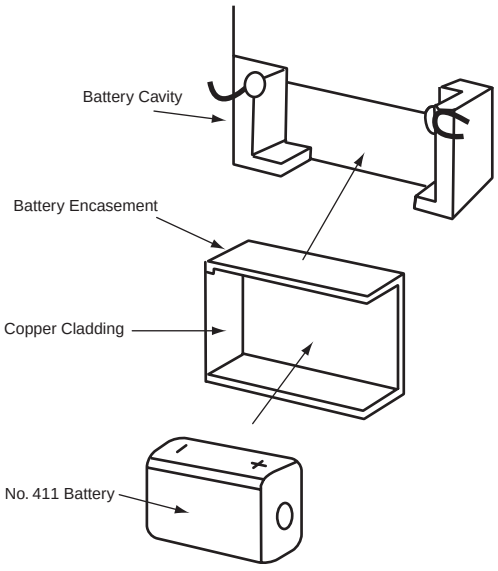
Specifications

AC AMP-CLAMP ADAPTER

Models	150-2 (for VOMs)
Ranges	5A, 10A, 50A, 100A, 250A (on 2.5 VAC Meter Range) 6A, 12A, 30A, 60A, 120A, 300A (on 3 VAC Meter Range)
Accuracy	±3% full scale

PHYSICAL
Dimensions: 7.8" x 3" x 1.1" (196.85 x76.2 x27.9 mm)
Weight: 12 oz (340.2 g)
Max. Cable Dimension: 1.125" diameter (28.6 mm)
Max. Bus Bar Dimensions: 2.38" x 0.38" (60.3 x 9.5 mm)

Battery Adapter Kit





Model No. 45002

Ordering Information

AMP-CLAMP	Catalog No.	ACCESSORIES	Catalog No.	BATTERY ADAPTER KIT	Catalog No.
150-2 AC Clamp, VOM Banana Plug	00541	Replacement Cable, Reversed Banana	00529	250-5 Battery Upgrade	45002
150-2 AC Clamp, VOM Reverse Plug	00545	Replacement Cable, Banana	00533		

Analog VOM Ranges and Specifications

Vom Type	160	260-6XLM	260-6XLPM	260-8XI	260-XPi	260-8, 260-8RT*	260-8P, 260-8RPT*	260-9S, 260-9SP	270-5 270-5RT*	TS113
DC VOLTS										
Ranges	250 mV 1/2.5/10/25/50/250/500/1000	250 mV 1.0/2.5/10/25/100/250/500/1000		250mV 2.5/10/25/50/250/500/1000		250mV 1.0/2.5/10/25/50/250/500/1000		250mV 2.5V/10/25/60/100/250/600	250mV, 1/2.5/10/50/250/500/1000	.25/.6/3/15/60/150/300/600
Accuracy	± 2%fs								2.35%fs	± 2%fs
Sensitivity	20KΩ/Volt									1,000 Ω /Volt
AC VOLTS										
Ranges	2.5/10/25/50/250/500/1000	2.5/10/25/100/250/500/1000		2.5/10/25/50/250/500/1000				2.5/10/25/60 100/250/600	2.5/10/50/250/500/1000	3/15/60/150/300/600
Accuracy	± 3%fs									± 3%fs
Sensitivity	5KΩ/Volt									300 Ω /Volt
Output Volts	No	0.1 mfd. capacitor in series with all AC voltage ranges thru 250 VAC (Limit 350 VDC)							Yes	0.1 mfd capacitor in series with all AC voltage ranges thru 250 VAC (Limit 350 VDC)
DC CURRENT										
Ranges	50µA/1/10/100/250/500 mA	50µA/0.5/5/50/500mA/5A		50µA/1/10/100/500mA/10A				1/10/100/600mA/10A	50µA/1/10/100/500mA/10A	15/60/300mA/1.5/6/30A
Millivolt Drop	250mV on 50mV on 50µA (2 ranges) 50mV all others	250mV on 50µA/0.5 mA/5A/252mV on 5/50mA/480 mV on 500 mA		250mV on 50µA/1mA 255 mV on 10mA/10A 300mV on 100mA/500 mV on 500mA				250mV	Same as 260-8	250mV
Accuracy	± 2%fs	± 1.5% fs 50µA 2.0% fs all others						± 2%fs		
AC CURRENT										
Ranges	No	10Amp w/up to 250 AC amperes w/AC Amp-Clamp adapter accessory								6/30
RESISTANCE										
RANGES Std. Power	RX1 0-3kΩ RX10 0-30KΩ RX100 0-300KΩ RX1K 0-3MΩ RX10K 0-30MΩ	RX1 0-1KΩ RX100 0-100KΩ RX1K 0-1MΩ		RX1 0-2KΩ RX100 0-200KΩ RX10K 0-20MΩ						RX1, RX100, RX1000
Accuracy	3° of arc	±2.5° of arc on RX1 ±2° of arc all others							1.5° of arc on RX1** 1° of arc all others	5° of arc on RX1, 2.5° of arc on others
Low Power Ohms	N/A	RX1 0-1k/RX10 0-10KΩ		N/A						
Voc	N/A	0.100V max		N/A						
Db (1Mw 600Ω) Ranges	4 Ranges	-20 to +49 5 Ranges		-20 to +50 5 Ranges				-20 to +43db 5 Ranges	-20 to +50 4 Ranges	N/A
Temperature	N/A	N/A								
GENERAL										
Movement Type	Length	Taut Band self-shielding annular, 100° arc. length 4.2"								
Mirror Scale	Yes	Yes								
Direct Reading Amp-Clamp Scales	No	Yes								
Movement Protection	Diode	Diode Network								Diode
Resettable Circuit Protection	No		Yes	No	Yes	No	Yes	Yes	No	Yes
Fuse	N/A	(1) 1A/250V Fuse (1) 2A/600V Fuse								(2) 2A
Audible Continuity Check	No			Yes					No	Yes
Power	1.5V 22.5V	1.5V 9.0V								2-1.5V, 1-9.0V
Case Material	ABS + Phenalic	ABS							Phenolic	ABS
Weight	12 oz.	2.5 lbs. (1.1kg)				3 lbs. (1.4kg)		2.25 lbs. (1.02kg)	3 lbs.	2.25 lbs. (1.02kg)
Dimensions	4/6" x 3.3" x 1.8"	7" x 5.25" x 3.1"				7" x 5.5" x 3.1"				

Need A Meter?



DC Voltage
Mini Indicator 3/64 DIN



AC Current
Rugged Seal Controller 4-1/2”



Process
Falcon Indicator 1/8 DIN



Watt
GIMA Series 1/4 DIN



Temperature
Mini-Max Indicator 3/64 DIN



DC Voltage
Century Style Indicator 3-1/2”



AC Current
Falcon Indicator 1/8 DIN



Process
Wide-Vue Indicator 3-1/2”



Watt
Rectangular Indicator 3-1/2”



Temperature
Hawk 3 Temperature 1/8 DIN



AC Voltage
Hawk 3 Controller 1/8 DIN



DC Current
Round Style Indicator 3-1/2”



Process
Mini-Max Indicator 3/64 DIN



Preset Batch/Dual
S662 Preset Counter 1/8 DIN



Frequency
Mini-Max Indicator 3/64 DIN



AC Voltage
Tru-Vue Indicator 2-1/2”



Power
GIMA Series 1/4 DIN



Count
S660 Preset Counter 1/8 DIN



Elapsed Time
Elapsed Time Meter 112ET



Frequency
Century Indicator 2-1/2”

Need a meter? Contact Simpson Electric today!

Phone: (715) 588-3947
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